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PATENT SPECIFICATION ⁽¹¹⁾ ₍₂₁₎

4 69.535
36, 320

Class (52) 59.6
Int. Cl. (51) B65G 21/00

Application Number (21) 36320/71
Lodged (22) 30th November, 1970
Accompanied by a Provisional Specification

Complete Specification
entitled (54) CONVEYOR STRUCTURE

Lodged (23) 30th November, 1971
Accepted (44) 30th January, 1976
Published (41) 7th June, 1973

Convention Priority (30) Nil

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Related Art (58) 238698 (51705/59) 59.6
227505 (45721/59) 59.6

The following statement is a full description of this invention, including the best method of performing it known to us:

11746/78-L

X777-71-ID-13P.C.

F. D. Atkinson, Government Printer, Canberra

36,320 m

THIS INVENTION relates to a construction of a conveyor, and particularly of a conveyor used in fruit picking.

Such conveyors are usually mounted on a transverse frame carried along on a wheeled carrier. Pickers place the fruit on the conveyor which then moves it upwards along the frame to a packing station on the carrier. A number of pickers, each dealing with one row of, for instance, pineapples, use the same conveyor, the carrier moving along the rows.

It is an object of this invention to make a conveyor frame which is of light weight suitable for use in such a system.

It is another object to make such a frame very simply and cheaply but with high strength and stability in use.

Accordingly the invention comprises a conveyor frame including:-

a longitudinal tubular element ^{longitudinal to the run of a conveyor belt;}
elongated side-pieces attached one to each side of said element and each having a first upright part projecting above said element and a second part, said second parts diverging upwardly from the upper edges of said first parts to form a trough;
a series of spaced conveyor rollers above said element, each roller having its axis transverse to said element and being journaled in said side

36,320 m

pieces to support the upper run of ^{said} a conveyor belt;
and a second series of spaced conveyor rollers ^{supported} beneath
said element to support the return run of said
conveyor belt.

Preferably, downwardly-directed supports are
attached to the sides of said element and the rollers of
said second series are each journalled in said supports.

36,320 m.

In order that the invention may be better understood, a particular embodiment for use on a pineapple-picker unit will be described by way of example. This embodiment will be described with reference to the accompanying drawings, in which:-

FIG. 1. shows a side view, partly broken away, of part of the conveyor frame, and

FIG. 2 shows in transverse section the frame of FIG. 1.

The conveyor unit itself is wheel-mounted with a transverse arm extending on each side above the ground and the crop.

Each arm comprises a conveyor whose carrying run moves towards the centre and on which pineapples may be placed at any part of its length. Pickers walk behind the slowly-moving arms, one picker to each row.

Each conveyor is of the type having a belt running on supporting rollers and moved by a pulley or roller at its inner end.

Referring to FIGS. 1 and 2, the conveyor frame is formed of a longitudinal aluminium pipe 10 having ^{side-pieces} flanges 11 attached to each side of it and extending vertically for a short distance at 12 and then being inclined outwards to form a trough 13 to contain the pineapples passing along on a moving conveyor belt 14.

Belt-supporting rollers 15 are journaled in the

36,320 ml

vertical sides 12 of the flanges 11 to lie slightly above the pipe 10, and are spaced at suitable distances apart.

At suitable intervals along the trough 13, a series of support members 16 are fixed. These are attached to the outside of the flanges 11 opposite each other and extend down below the pipe 10.

Rollers 15A to support the return run of the belt 14 are journaled in these lower parts of support members 16.

The belt 14 lies over the upper rollers 15, passes (to the left in the drawing) round a driving roller (not shown) and returns beneath the pipe 10 on the lower rollers 15A.

Pineapples placed in the trough 13 are carried along to the left by the belt 14 and prevented from escaping by the flanges 11.

As best seen in FIG. 2, support members 16, which are of heavier construction than flanges 11, are secured at 17 to pipe 10 and pass upwards spaced from vertical sides 12 to be secured at 18 to trough 13 to strengthen it. The rollers 15 may be journaled in both part 12 of flanges 11 and in the corresponding member 16. Low-friction bearings (e.g. nylon) may be used.

Although spaced separate support members 16 have been shown, and are preferred to save on the use of heavier metal, a continuous lower support may be used. In this case the upper flange 11 and lower continuous support 16 could be made of a

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single sheet of metal attached (as at 17) to pipe 10.

The conveyor frame described is extremely simple and cheap to construct and, owing to the great rigidity of the pipe and flange structure and the consequent elimination of any stiffening, is very light.

Various other changes and modifications may be made in the arrangement described without departing from the invention claimed.

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The claims defining the invention are as follows:-

1. A conveyor frame including:-
a longitudinal tubular element, *longitudinal to the run of a conveyor belt;*
elongated side-pieces attached one to each side of said element, and each having a first upright part projecting above said element and a second part, said second parts diverging upwardly from the upper edges of said first parts to form a trough;
a series of spaced conveyor rollers above said element, each roller having its axis transverse to said element and being journalled in said side pieces to support the upper run of ^{said} conveyor belt;
and a second series of spaced conveyor rollers ^{supported} beneath said element to support the return run of said conveyor belt.
2. A frame as claimed in claim 1, in which the rollers of said second series are each journalled between a ^{pair} ~~pair~~ of depending supports, one on each side of said element.
3. A frame as claimed in claim 2 in which each said roller of said second series is journalled between its own pair of supports.
4. A frame as claimed in claim 2 or 3, in which each support is extended above said element and ^{is} ~~is~~ attached to a side piece to strengthen it.
5. A frame as claimed in claim 2, in which each said side-piece and its corresponding support are

36,320 m.

formed of a single sheet of material.

6. A conveyor frame substantially as described with reference to the accompanying drawings.

DATED this First day of December, 1975.

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By their Patent Attorneys,

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36,320 m.

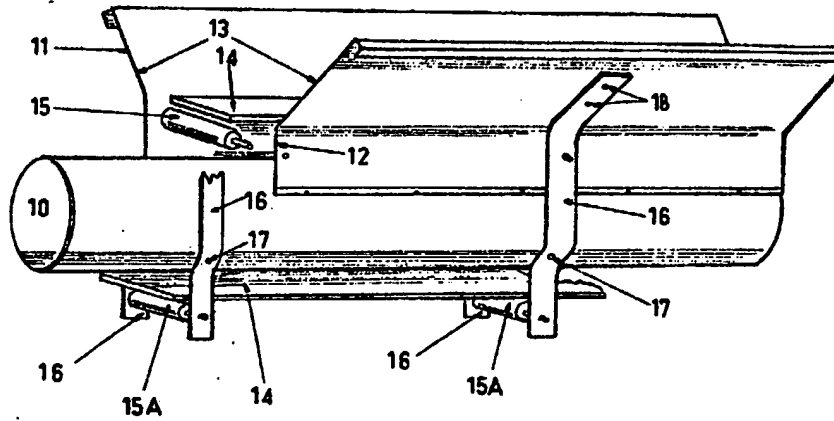


FIG 1

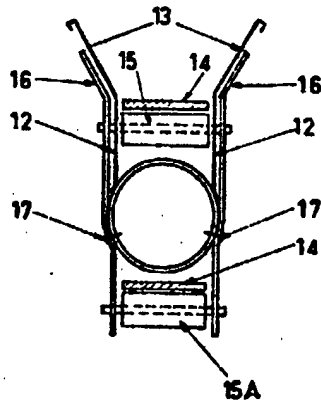


FIG 2

36,320 л.

36,320 m

36,320 ml.